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GB 1504407
GB 1469496
GB 1460732
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(54) **Razors**

(57) A razor comprises a handle 10 and means 12 for mounting a razor blade, in which there is a connection 12c, Fig. 4 between the handle and the mounting means comprising a portion of reduced thickness which constitutes a hinge whereby the mounting means can pivot relative to the handle.

The razor may comprise resilient means to maintain the mounting means in a predetermined pivotal position relative to the handle. Preferably, the portion of reduced thickness and the resilient means are of plastics material. The handle, the mounting means and the portion of reduced thickness may comprise a single plastic moulding.

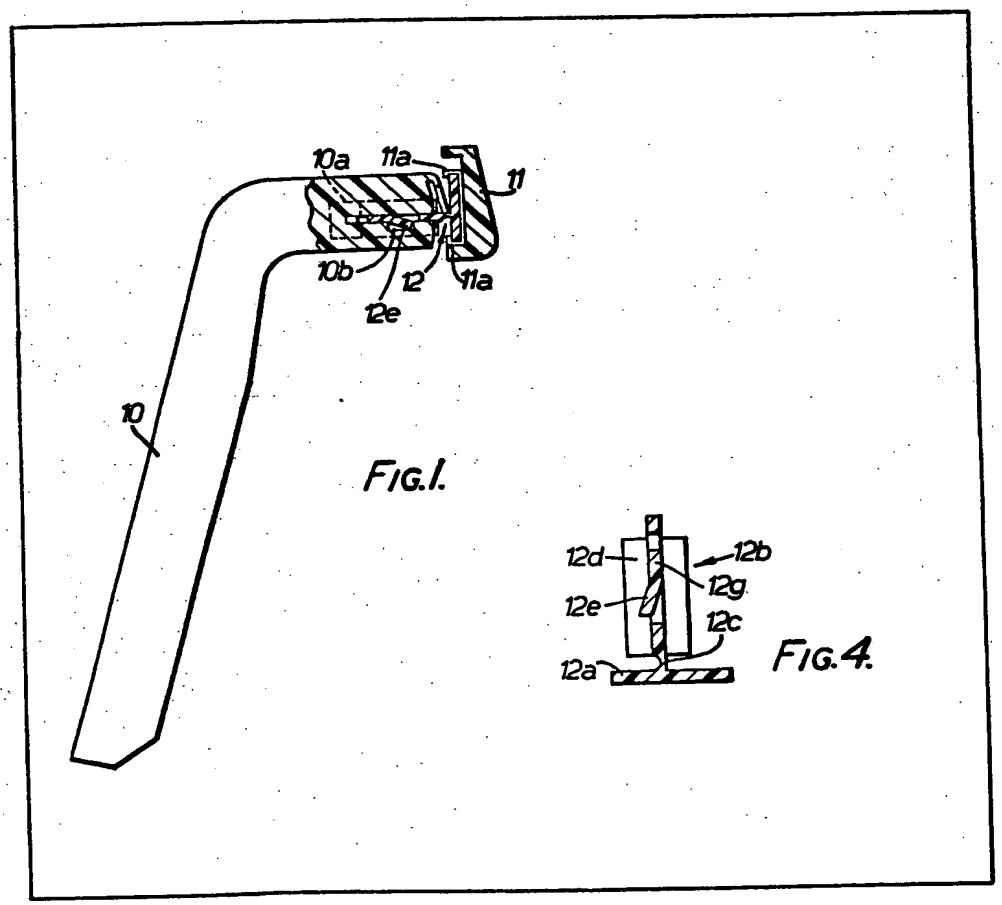

FIG.1.

FIG.4.

The drawings originally filed were informal and the print here reproduced is taken from a later filed formal copy.

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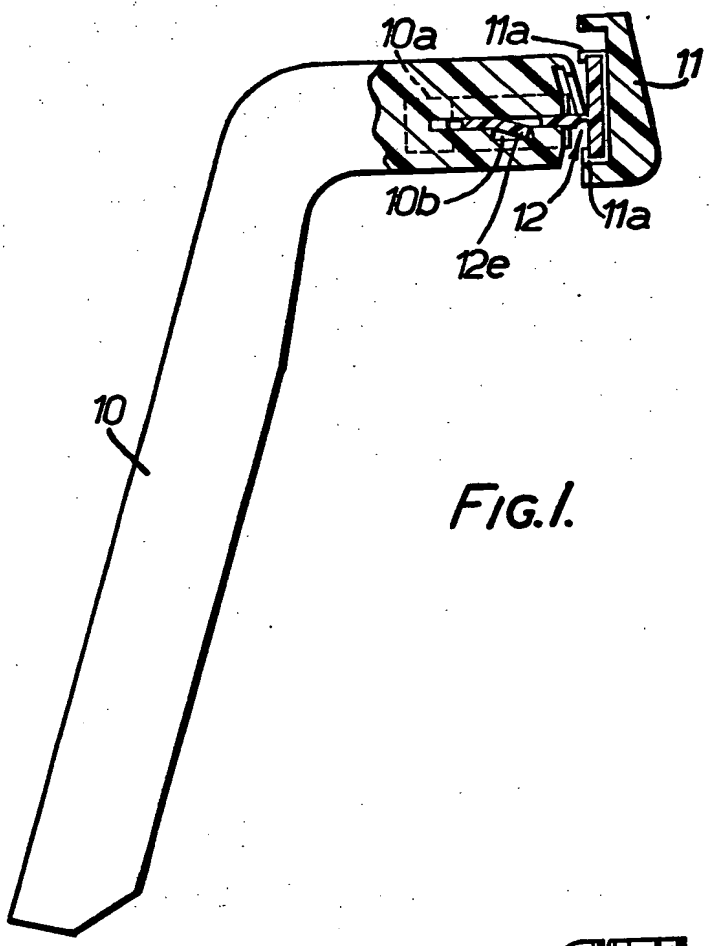

FIG.1.

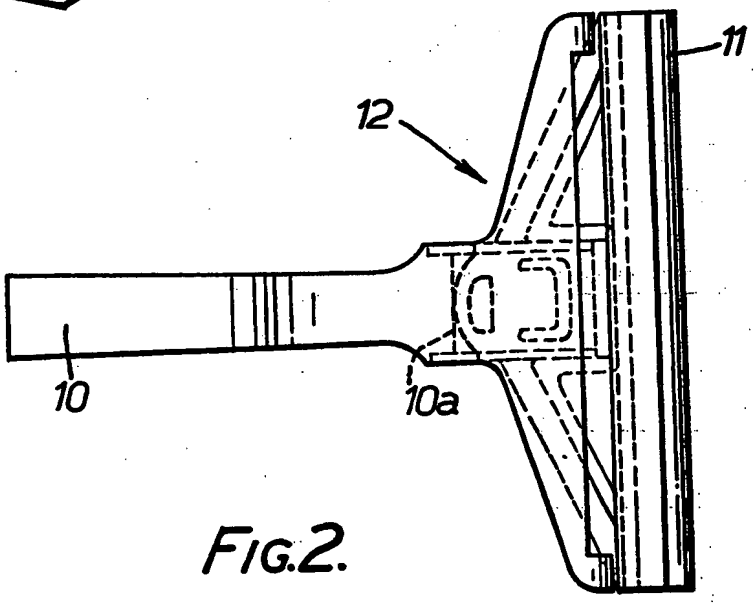

FIG.2.

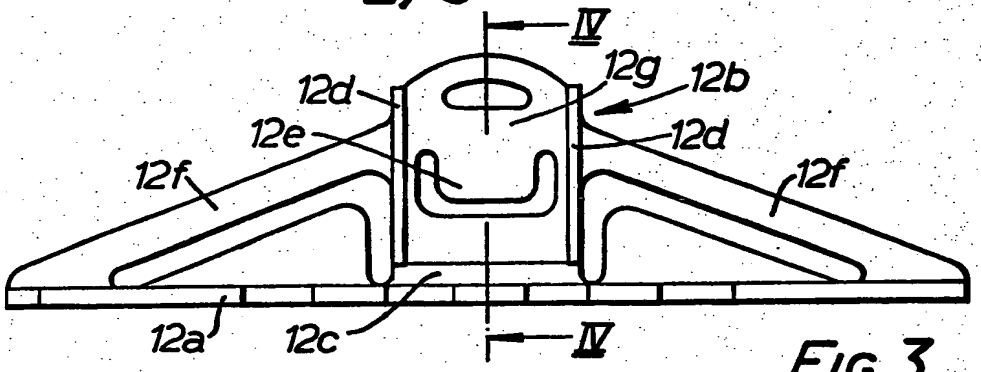

FIG.3.

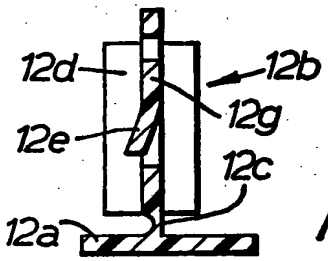

FIG.4.

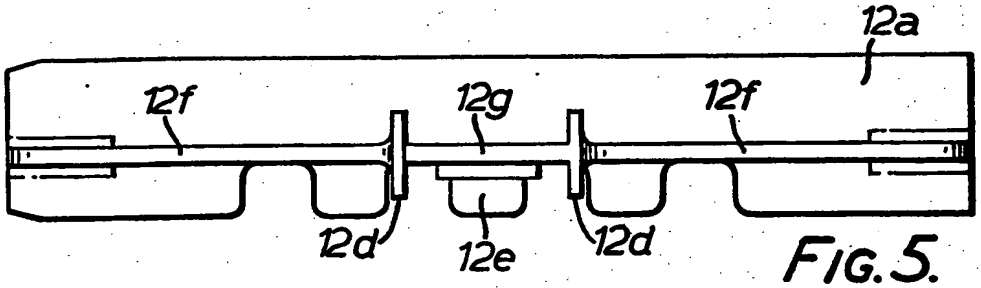

FIG.5.

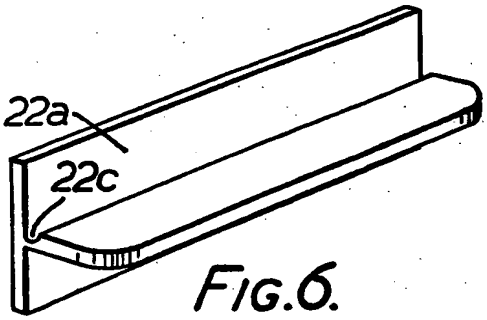

FIG.6.

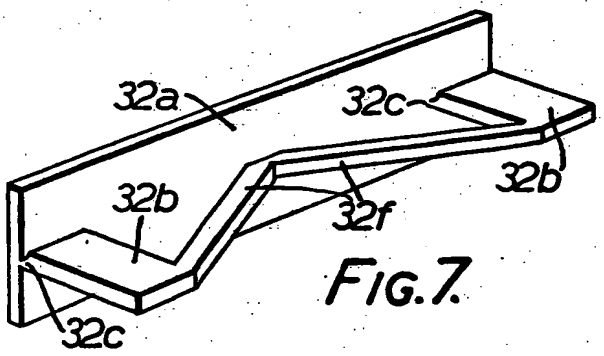

FIG.7.

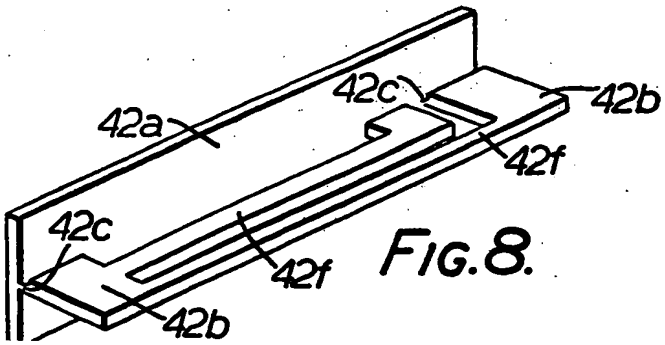

FIG.8.

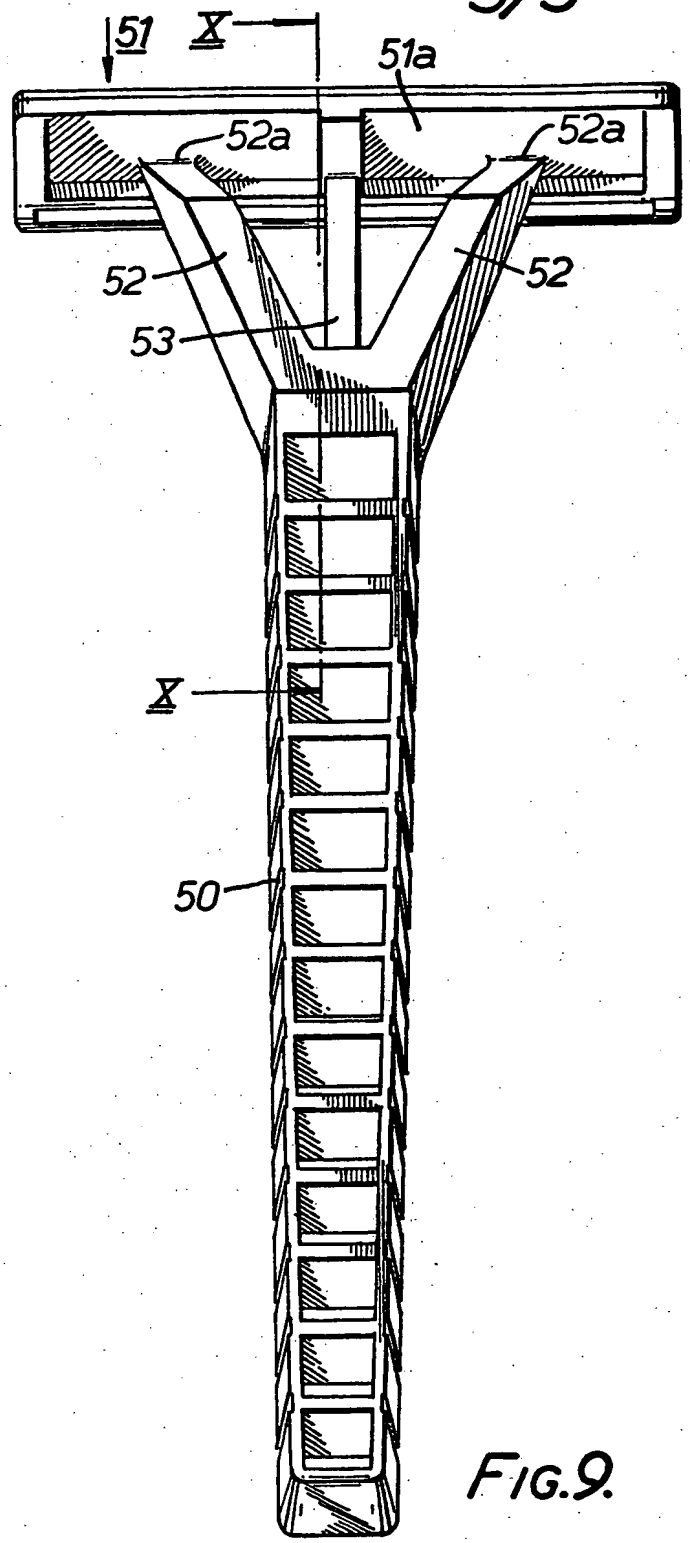

FIG.9.

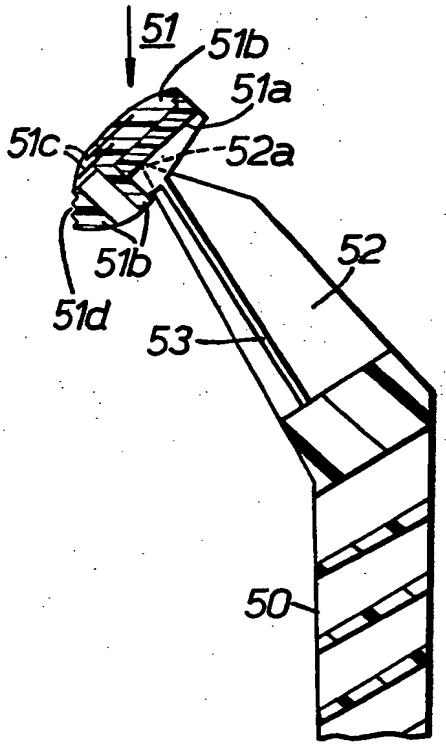

FIG.10.

SPECIFICATION

Improvements in or relating to razors

This invention relates to razors. More particularly, the invention relates to razors of the kind in which the portion of the razor which carries the razor blade, or razor blades, can pivot (or rock) relative to the handle in response to the pressures which result when that portion of the razor contacts the skin during shaving.

According to the present invention there is provided a razor having a handle and means for mounting a razor blade, in which there is a connection between the handle and the mounting means comprising a portion of reduced thickness which constitutes a hinge whereby the mounting means can pivot relative to the handle.

The razor may comprise resilient means to maintain the mounting means in a predetermined pivotal position relative to the handle. Preferably, the portion of reduced thickness and the resilient means are of plastics material. The handle, the mounting means and the portion of reduced thickness may comprise a single plastic moulding, which may also incorporate the resilient means if the latter is used.

Several possible constructions of razor in accordance with the invention will now be described with reference to the accompanying drawings, in which:—

Figure 1 is a sectional side elevation of a first construction,

Figure 2 is a rear elevation of the first construction,

Figure 3 is a plan view of a coupling forming a part of the first construction,

Figure 4 is a sectional view along the line IV—IV in Figure 3,

Figure 5 is a rear view of the coupling,

Figures 6, 7 and 8 are diagrammatic perspective views of alternative constructions for the coupling portion of a razor, in which similar parts to those in the earlier figures are similarly referenced,

Figure 9 is a rear view of a further construction of razor, and

Figure 10 is a sectional view along the line X—X in Figure 9.

Referring first to Figures 1 to 5, the first construction will be seen to comprise a handle 10, a head in the form of a shaving unit 11, (shown diagrammatically), and a coupling 12. The shaving unit 11 is of the kind in which one or more razor blades are mounted, a guard surface being provided for the cutting edge or cutting edges of the, or each blade. The underside of the shaving unit 11 is formed with a trackway 11*a*. With the present invention the connection between the handle 10 and the shaving unit 11 is flexible in order that the shaving unit 11 can pivot (or rock) relative to the handle 10 in response to the pressures applied to it when it is in contact with the skin during shaving. Preferably, in the absence of such pressures the shaving unit is self-restoring to a predetermined 'static' position.

In this first construction coupling 12 provides the flexible connection between the shaving unit and the handle. Referring more particularly to Figures 3 to 5, the coupling 12 provides a parallel sided track 12*a* for engagement with trackway 11*a* on the shaving unit 11, the shaving unit 11 being replaced when no longer fit for use by sliding it off the track 12*a* and sliding a new shaving unit onto the track 12*a*. Track 12*a* is joined to a central hub 12*b* by a portion of reduced thickness which constitutes a hinge 12*c* and enables the track 12*a* to pivot relative to the hub 12*b* under the pressures referred to above, and to be self-restoring to the position shown when such pressures are removed. The hub 12*b* has a central web 12*g* and two parallel flanges 12*d*, 12*d* which engage in an H-section recess 10*a* in the end of the handle. The web 12*g* is formed with a resilient tongue 12*e* displaced from the plane of the web and which can be deflected as the hub is slid into the recess 10*a* in the handle 10 during assembly of the coupling 12 with the handle 10, the tongue 12*e* then springing into a groove 10*b* in the handle recess 10*a* to latch the coupling 12 in the handle. Although not essential, the coupling 12 is provided with torsion arms 12*f*, 12*f* each of which extends from a flange 12*d* to one end of the track 12*a*. The deflection of the torsion arms 12*f*, 12*f* which occurs when the shaving unit 11 pivots on the hinge 12*c* aids in restoring the shaving unit 11 to its static position.

The castellated form of one edge of the track 12*a* (the lower edge as viewed in Figure 7) is to permit escape of cut hairs and shaving soap which have passed through passages in the interior of shaving unit 11.

A suitable material for the coupling 12, or at least that portion which comprises the hinge 12*c*, is a polypropylene plastic, for example that sold by Imperial Chemical Industries Ltd. under the Trade Mark PROPATHENE Product GMX 43.

An alternative material is an acetal resin such as that sold by Du Pont Corporation under the Trade Mark DELRIN.

It will be appreciated that the form of the hinge connection between the shaving unit and the handle may take many other forms from that shown in the first construction, and Figures 6 to 8 show diagrammatically, and purely by way of example, possible alternative forms. In Figure 6 the hinge 22*c* extends for substantially the whole length of the track 22*a* and no torsion arms are provided. In a modification of the Figures 6 form (not illustrated) the hinge is segmented, that is to say it is in several lengths rather than being continuous. Figure 7 shows diagrammatically a form in which there is a hinge 32*c* at each end of the track 32*a* and the torsion arms 32*f*, 32*f* extend from the centre of the track 32*a* to the outer portion of the 'hubs' 32*b* by which the coupling is secured to the handle. In the form diagrammatically illustrated in Figure 8 the hinges 42*c* are again at each end of the track 42*a* with torsion arms 42*f* each extending from a part of the track adjacent the 'hub' 42*b* at one end of the

track 42*a* to the hub 42*b* at the remote end.

It will be appreciated that many modifications are possible. For example, instead of the coupling having a track and the shaving unit a trackway this portion of the coupling may serve as the base of the shaving unit on which the other components are assembled. In another modification, the couplings may be produced as separate parts which are subsequently fixed permanently to shaving units to provide replaceable units for use with a permanent handle. The latter will be so constructed that it can receive a replaceable unit which can be detached and replaced when it is no longer fit for use.

Although reference has been made to plastics being used for the coupling, a part at least of the coupling including the hinge may be of metal.

A further possible construction is shown in Figures 9 and 10. In this construction the handle 50 forms part of a one piece moulding with the base 51*a* of a shaving unit 51 and with forked forwardly-projecting arms 52, 52 which extend from the upper end of the handle 50 to the underside of the base 51*a*. The arms 52, 52 are each connected to the base 51*a* by a thin section which constitutes a hinge 52*a*, 52*a* which enables the base 51*a* to pivot relative to the handle 50 in response to the pressures applied to the shaving unit 51 when it is in contact with the skin during shaving. To aid in restoring the shaving unit 51 to a predetermined static position when the pressures are removed, a cantilever spring 53 forms an integral part of the moulding and extends from the root of the forked arms 52 to a mid-position on the underside of the base 51*a*. It will be appreciated that pivoting of the base 51*a* relative to the handle flexes the spring 53 which will straighten and restore the shaving unit 51 to its static position after pressure has been removed from the shaving unit.

A twin-bladed shaving unit is shown diagrammatically in section in Figure 10 and consists of a moulding 51*b* which is secured in any suitable manner to the base 51*a*, provides support for two blades 51*c*, 51*c*, and has a guard surface 51*d*.

This construction is designed as a disposable razor in which the complete razor is thrown away when the shaving unit is no longer fit for further use.

CLAIMS

1. A razor having a handle and means for mounting a razor blade, in which there is a connection between the handle and the mounting means comprising a portion of reduced thickness which constitutes a hinge whereby the mounting means can pivot relative to the handle.

2. A razor according to claim 1, wherein said portion of reduced thickness is of plastics material.

3. A razor according to either claim 1 or claim 2, wherein said handle, said mounting means and said portion of reduced thickness comprise a single plastic moulding.

4. A razor according to any one of claims 1 to 3, further comprising resilient means adapted to maintain said mounting means in a predetermined pivotal position relative to said handle.

5. A razor according to claim 4 as appendant to claim 3, wherein said resilient means is also a part of said single plastic moulding.

6. A razor according to either claim 4 or claim 5, wherein said resilient means is of plastics material.

7. A razor according to any one of claims 1 to 6, wherein said means for mounting a razor blade forms the base of a shaving unit comprising at least one blade and means for securing the blade to the mounting means and for providing a guard surface for the cutting edge of the blade.

8. A razor according to any one of claims 1 to 7, wherein said mounting means comprises a track for engagement with a corresponding trackway of a shaving unit.

9. A razor according to any one of claims 1 to 8 wherein two portions of reduced thickness connect said handle to said mounting means.

10. A razor having the construction substantially as described herein.

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